A Study of Recommender Systems with Applications

by

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Abstract: In this project, we studied K-Nearest Neighbor (KNN), asymmetric Singular Value Decomposition (SVD) and Restricted Boltzmann Machine (RBM) methods in recommender systems. We applied these methods to three datasets: movielens100k, Amazon-Meta and R3.Yahoo!Music. By comparing their results, we found that the recommender methods are very much data oriented. Since Amazon-Meta was collected based on friend recommendation settings, we obtained the lowest root mean square error (RMSE) among the three datasets by using the KNN algorithm. The users in the Amazon-Meta dataset are correlated, RBM has large RMSE compared to the KNN and asymmetric SVD methods. For R3.Yahoo!Music all three methods give moderate RMSE, but none of the methods give RMSE less than 1. For the movielens100k data, asymmetric SVD shows the best prediction among the three methods.

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